

Claims

- [c1] 1. A front opening unified pod (FOUP) door opener with dust-proof device for opening up a door to a processing station so that a wafer may be transferred from a FOUP into the processing station and vice versa, the FOUP door opener at least comprising:
- an inner door setup close to the FOUP; and
 - a dust-proofing device setup close to the processing station, the dust-proofing device further comprising:
 - a gas pump for pumping gases;
 - a gas filter having a gas inlet port connected to the gas outlet port of the gas pump for filtering out dust particles suspended in the gas;
 - a gas outflow unit connected to the gas outlet port of the gas filter, wherein the gas outflow unit blows out a laminar layer of gas; and
 - a gas inflow unit connected to the gas inlet port of the gas pump so that the gas blown out from the gas outflow unit is able to return to the gas pump via the gas inflow device,
 - wherein the gas outflow unit and the gas inflow unit are set up facing each other with a spatial gap between the two, wherein the spatial gap is a channel for wafers going in and out of the FOUP and that a curtain of gas flowing from the gas outflow unit to the gas inflow unit is parallel to the surfaces of the wafers so that the gas sweeps over the upper and lower surface of the wafers.
- [c2] 2. The FOUP door opener of claim 1, wherein the space between the inner door and the dust-proofing device further includes an outer door.
- [c3] 3. The FOUP door opener of claim 1, wherein the gas outflow unit includes a plurality of small pipelines therein.
- [c4] 4. The FOUP door opener of claim 1, wherein the gas pump includes an air-blow drum.
- [c5] 5. The FOUP door opener of claim 1, wherein the processing station includes a reaction furnace.
- [c6] 6. The FOUP door opener of claim 1, wherein the gas includes nitrogen.

- [c7] 7. A dust-proofing device setup next to the wafer entrance of a processing station, the dust-proofing device comprising:
- a gas pump for pumping gases;
 - a gas filter having a gas inlet port connected to the gas outlet port of the gas pump, wherein the gas filter removes dust particles suspended in the gas;
 - a gas outflow unit connected to the gas outlet port of the gas filter, wherein the gas outflow device blows out a laminar layer of gas; and
 - a gas inflow device connected to the gas inlet port of the gas pump, wherein the gas blown out of the gas outflow unit is returned to the gas pump via the gas inflow unit;
- wherein the gas outflow unit and the gas inflow unit are setup facing each other with a spatial gap between the two, the spatial gap is a channel for wafers going into or out of the processing station, a curtain formed by blowing from the gas outflow unit to the gas inflow unit flows in a direction parallel to the surfaces of the wafers so that the fluid is able to sweep over the upper and lower surface of the wafers.
- [c8] 8. The dust-proofing device of claim 7, wherein the gas outflow unit further includes a plurality of small pipelines therein.
- [c9] 9. The dust-proofing device of claim 7, wherein the gas pump includes an air-blow drum.
- [c10] 10. The dust-proofing device of claim 7, wherein the processing station includes a reaction furnace.
- [c11] 11. The dust-proofing device of claim 7, wherein the gas includes nitrogen.